

Uses and Abuses of Fertilizers

By Prof. R. J. H. De Loach, Director of Georgia Experiment Station.

3. ROTHAMSTED EXPERIMENT STATION AND FERTILIZERS.

The Third of a Series of Six Articles

The Rothamsted Experiment Station is in England, and is noted for the great work it has done along all lines of agricultural work. It has gone into the laws of soil fertility, has been the first to discover many of these laws, and has in all its history been especially interested in working out a plan of farm management by which soil fertility could be maintained at minimum cost to the farmers.

The Rothamsted experiments began in the year 1837, when Sir John Bennett Lawes began experiments on his private estate. He was a man who loved the soil and to experiment with it. Strange to say, he was a fertilizer manufacturer in a certain sense, as he early discovered a process for transforming bone into superphosphate by the use of sulphuric acid, took out a patent for this in 1842, and built an extensive business which he managed for about thirty years. In 1843 he associated with him J. H. Gilbert, and these two men for more than fifty years conducted extensive agricultural investigations in regard to soils and fertilizers, and feeds and feeding of domestic animals. In 1889 Sir John turned over his large estate, which had now grown so important, and had become so well known in all parts of the civilized world, to a board of directors, and endowed it with half a million dollars.

Twenty Years Experiments on Same Plots.

Among many other things that were done, experiments were conducted with fertilizers, mineral salts, and many forms of ammoniates, also with animal manures, to determine just what soils needed to grow the most crops. For this work plots of ground were set aside, marked off and carefully measured, and then planted to the crop with which the investigator wished to work. Small plots would be used for the different kinds of mineral and animal manures, and in each series one plot would be left unfertilized throughout the entire experiments, while the others would have applied the different combinations of fertilizers, etc. Careful reports were taken from each end of these plots, and with interesting results. The same experiments were continued for twenty years and more.

Many experiments were conducted with hay, and some of these with the following results: The plots that had no manure of any kind averaged in twenty years, 2,383 pounds of hay, the plots which had mineral manure alone, 3,598 pounds; the plots with mineral manure and 400 pounds of ammonia salts, 5,711 pounds of hay; those with mineral manure and 800 pounds of ammonia salts, 6,725 pounds of hay; the plots which received the mineral manure and nitrate of soda 6,367 pounds of hay. Considering the very low cost of the fertilizers in comparison to the increased yields brought about by their use, one could not fail to see the value of the manure salts.

Larger Yields Were Always Obtained.

The Rothamsted station was interested in the permanent improvement of land and the part played in this by the use of fertilizing materials. From the many experiments carried out, there was never a doubt of the wisdom of applying plant food to the soil. Larger yields were always obtained, other things being equal, and the fertilization of the soils throughout England and her possessions is recommended. It was decided to ascertain the effects of fertilizers on corn. Seven plots were treated as follows:

- Plot 1. Unmanured.
- Plot 2. Mixed mineral manure, 300 pounds sulphate of potash, 200 pounds sulphate soda, 100 pounds sulphate magnesia, 350 pounds superphosphate lime.
- Plot 3. Ammonia salts, comprising 200 pounds sulphate ammonia and 200 pounds muriate of ammonia.
- Plot 4. Ammonia salts and mixed mineral manures, as Plot 2.
- Plot 5. Five hundred and forty pounds Peruvian guano.
- Plot 6. Two thousand pounds rape cake.
- Plot 7. Fourteen tons farmyard manure.

The results of six years of experiments follow: The greatest increase in yields was obtained with fertilizers richest in ammonia. The ammonia salts, the guano and rape cake gave the largest increase, which was about four or five bushels increase of dressed corn. In Plot 2, where only the mineral manures were used, the increase was least, while in Plots 3 and 5 it was greater, and in 4 greatest. It seems that the mineral manures needed the effect of the ammonia salts in order to help them become available. There was in every case a substantial increase where fertilizers were used over the plots that remained unmanured.

The great object in giving the above information is to bring to the attention of farmers and business men that the question of fertilizers for the average farm crops is a subject as old as any farm of agricultural education, and Rothamsted did much fundamental work on it. In no case was it found that ammonia salts and other mineral manures, when applied together, were not valuable. Farmyard manure was somewhat valuable by itself, but far more so when ammonia salts were applied with it.

GERMAN STEAMSHIP, LOADED WITH FOOD SENT TO BOTTOM. London, March 22.—The sinking by a Russian warship of the steamship *Esperanza* off Kall Akra, in the Black Sea, off the Rumania coast, is reported in a Reuter dispatch filed at Bucharest on Sunday. The *Esperanza*, a 7,000-ton vessel flying the German flag, is said to have been loaded with food stuffs for Constantinople. The crew was captured by the Russians. The dispatch also reports the sinking of a score of small sailing ships with cargoes of food.

NOTICE!

We are pleased to inform you that Dr. M. R. Campbell, of Anderson, S. C., will be with us, Wednesday, March 29th, testing eyes and fitting glasses. Dr. Campbell is a scientific man and does accurate work and guarantees it. He visits us twice every year and you can always depend on him for good work. Remember the date and tell your friends. March 29th. Prices reasonable. \$3.00 to \$5.00 up.

Peoples Drug Store

HEATH SPRINGS, S. C.

HAND IN HAND

GOOD PRINTING



GOOD BUSINESS

A businesslike business card is a *business asset*. We can show you fine samples here. Before ordering elsewhere GIVE US A CALL. * * *

BOOK WORK
LAW WORK
CIRCULARS

Job Work of All Kinds

THE LEGACY OF A WONDERFUL WOMAN

This is a Story of Paramount Interest to Those Who Are Seeking Health.

There Will Be Several Installments All of Gripping Personal Experiences.

Chapter 2—The Indian Gives His Secret and Goes Back to the Forest.

A very sick child in Mrs. Person's family, long after the Indian had gone back to his haunts, caused the family to go in search of the "simples" with which to brew the Bitters and Wash, so eloquently praised by the Indian, whose visit of years before had all but been forgotten. They found the herbs and simples and the first of the now famous healing agent was made on the family stove in a great old fashioned cauldron. We will close this chapter by simply stating that the child quickly recovered through the medicine thus made.

It has benefitted thousands since that early day, as you will see by reading the following:

Mr. Bob B. Bass of Cunningham, N. C., was cured of a sore on his face, indigestion of forty years standing and nasal catarrh by Mrs. Joe Person's Remedy.

Get it at your druggist. If he cannot supply you, write us.

This wonderful remedy on sale at Midway Drug Co., Lancaster, and Stover Pharmacy, Heath Springs, South Carolina. (adv.)

A GOOD FAMILY COUGH SYRUP

Can be made by mixing Pine-Tar, Aconite, Sugar, Hyoscyamus, Sassafras, Peppermint, Ipecac, Rhubarb, Mandrake, Capsicum, Muriate Ammonia, Honey and Glycerine. It is pleasant, healing and soothing, raises the phlegm, and gives almost instant relief. For convenience of those who prefer not to fuss, it is supplied ready made in 25c bottles under name of Dr. Bell's Pine-Tar-Honey. Can be had at your druggist. Insist on getting Dr. Bell's Pine-Tar-Honey and see that the formula is on the package.

Rush Printing a Specialty

Are You In a Hurry For That Printing of Yours? :- :-

WATCH US SPEED UP

We Do Printing In the Twinkling of an Eye

THE GREAT KIDNEY MEDICINE FULFILLS ITS MISSION

I was afflicted with Bladder trouble. I suffered such great pain that the doctor had to take my urine. After the doctor had treated me for two weeks, I did not get any better. Remembering that a few doses of Dr. Kilmer's Swamp-Root completely relieved my mother-in-law, after all the doctors who were called on her case had failed to do her any good, I asked my husband to get me a bottle of Swamp-Root, which he did, and I took it and threw the doctor's prescriptions away, because immediately after I started taking Dr. Kilmer's Swamp-Root I was greatly relieved. My husband was so pleased he said I should take one dozen bottles of Swamp-Root, but by the time I had taken seven bottles I was completely restored to health. That was six years ago and I have not taken any medicine since. My weight is 195 pounds, have three children, do my own work in a house of twelve rooms and I keep boarders.

Very truly yours,

MRS. ANNIE BAUGHMAN, 657 Newell St., Barberton, Ohio.

Personally appeared before me this 19th day of December 1914, Mrs. Annie Baughman, who subscribed the above statement and made oath that the same is true in substance and in fact.

W. A. Norton, Notary Public.

Letter to Dr. Kilmer & Co., Binghamton, N. Y. Prove What Swamp-Root Will Do For You.

Send ten cents to Dr. Kilmer & Co., Binghamton, N. Y., for a sample size bottle. It will convince anyone. You will also receive a booklet of valuable information, telling about the kidneys and bladder. When writing, be sure and mention The Lancaster Semi-Weekly News. Regular 50c and \$1.00 size bottle for sale at all drug stores.

The Quinine That Does Not Affect The Head Because of its tonic and laxative effect, LAXATIVE BROMO QUININE is better than ordinary Quinine and does not cause nervousness or ringing in head. Remember the full name and look for the signature of F. W. GROVE, 25c.

BE A BOOSTER

And Advertise in

THE NEWS

THIS PAPER COVERS LANCASTER COUNTY and is the ONLY Paper that does. It also circulates in adjoining counties.

Lancaster is the center of a Big Trade District and the people want to know what our merchants have to sell.

Some Live Wires are Already Advertising. WHY DON'T YOU?

Our Job Department is "On The Job"

The Lancaster News